

SEQUENCE LISTING

<110> THE GOVERNMENT OF THE UNITED STATES OF AMERICA, AS REPRESENTED BY THE
SECRETARY OF THE DEPARTMENT OF HEALTH AND HUMAN SERVICES CENTERS FOR
DISEASE CONTROL AND PREVENTION

Rosely M. Zancope-Oliveira
Timothy J. Lott
Leonard W. Mayer
Errol Reiss
George S. Deepe

<120> NUCLEIC ACIDS OF THE M ANTIGEN GENE OF
HISTOPLASMA CAPSULATUM, ANTIGENS, VACCINES, AND ANTIBODIES,
METHODS AND KITS FOR DETECTING HISTOPLASMOSIS

<130> 14114.0325U2

<140> 09/674,195

<141> 2000-10-26

<150> 60/083,676

<151> 1998-04-30

<150> PCT/US99/09151

<151> 1999-04-27

<160> 13

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 3862

<212> DNA

<213> Histoplasma capsulatum

<220>

<221> misc_feature

<222> (1)...(3862)

<223> n = a,t,c, or g

<400> 1

ggatcctgct ggctccgata actttgcttt atccaagggt ctcggcgaat gccagggtgcc	60
atcgatctat attttgaagt ttatcacctc aatggcttca ccccatgacg caccttttat	120
ttttattttc attcatcttc tctgtggcaa acatgcaggt atgcgagctc tggaccctgg	180
ggtgtggccc ttgatgcata tggtttatTT atagccgccc ggaagccctg gcctgttaaa	240
ttttggacct cctcccgcca ttctttccaa acttcgtgcg tccgtttccc atttcccccc	300
tccccatttg ggttccctat aggccactgc gtgctccact caagaagggt cccagtcaat	360
ttggtcccta cctctccaa cactatctgc atatgtaata tatatcgata tctaactgcc	420
attgattatt tgtcttcttc agcatctttt tgtctcgagc aagcttactc cacgttcaat	480

tcagggggta	aaaatgcggt	cgctcaagct	tatactcgcc	tcggcgggtg	ttgtttctgc	540
agcctgtccc	tacatgtcag	gggagatgcc	tagcggtcag	aaaggccccc	tcgatcgccg	600
ccatgacact	ctctccgacc	ctacggacca	gtttcttagc	aagttttaca	ttgacgatga	660
acagtcgggtg	ctaacaacgg	acgtgggtgg	tcccacgag	gaccaacaca	gcctgaaggc	720
tggaaataga	ggcccaactc	tacttgagga	ttttatcttc	cgccagaaga	ttcaacactt	780
tgatcatgag	agggtatgta	gatacaaaat	atgtgaccgt	gttgcaaadc	cgctaattca	840
attttacgca	ggttcctgag	cgcgcgcgtc	atgctcgagg	agctggtgcc	catggcgat	900
tcacatccta	taataactgg	tcgaatatca	cagccgcac	cttcttgaac	gcggcaggaa	960
agcagacacc	agtattcgtg	cggtttttcta	cagtcgctgg	tagcagaggc	agtgttgact	1020
ctgctcgca	tatccacgga	tttgcgaccc	gtctgtatac	cgatgaaggc	aatttttgta	1080
agcattatat	cgtggtagtc	atactcataa	cagcacaaca	aatatgaata	caaaccagg	1140
acctaggctg	actactcggc	aatgtagata	tcgtcgga	caacggtcca	gtcttcttca	1200
ttcaggacgc	tattcaattc	cctgatttga	ttcacgctgt	caagccgcaa	ccagacagtg	1260
aaattcccca	ggctgcaact	gcacatgata	cggcatggga	tttctcagc	cagcagccca	1320
gctcattgca	tgccctcttc	tgggcaatgt	caggacatgg	aatccctcgc	tcaatgcgtc	1380
atgttgatgg	gtggggcgctc	cataccttcc	gacttgtcac	cgacgagggc	aactcgacct	1440
tggtaagtt	tcgctggaag	accctccaag	gaagagcggg	cctggtatgg	gaagaggcac	1500
aggctcttgg	cggaaagaat	cccgaacttc	atcgacaaga	cctctgggat	gccattgaat	1560
ctggaaggta	ccctgagtg	gaggtaaagt	atgattcccc	caaatcatta	gttctgacag	1620
tgtttctctg	ctctgtcgg	tgctcttttc	gtctttttct	atatcttcaa	ctaagactga	1680
ctttatatac	gttttactca	tatagctggg	ctttcaattg	gtgaatgaag	cagatcaatc	1740
caagtgtgat	ttcgatctat	tagatccac	caaaatcatc	ccagaagaac	ttgttctctt	1800
cacccaatc	ggaaaaatgg	tcttgaaccg	aaacccaaaa	agttattttg	ccgaaactga	1860
gcagatcatg	gttggtccac	cccctatata	tttggaatat	gaatacatgt	atagctagat	1920
gaagcgtata	tctaaatata	tttccacagt	tccaaccagg	tcagttagtt	cgcggaatcg	1980
atttcacgga	tgaccttttg	cttcagggcc	gcttgtactc	ctaccttgac	actcaattga	2040
atcgccatgg	aggtcccaac	ttcgagcaac	tgccgatcaa	cagaccccg	atcccatcc	2100
ataacaacaa	tcgcgacgg	gctggtgaag	tacttctcac	ctaccatgtc	aacttccatc	2160
ttgaccaat	cgatttgtat	agagtattaa	catccccgtc	tgacacagg	aaatgttcat	2220
ccctctaaac	acggccgcat	atacacccaa	ctcaatgag	aacggattcc	cacaacaagc	2280
caaccggacc	cataacagag	gattcttcac	cgcacctggg	cgtatggtaa	atggaccact	2340
agtgcgcgag	ctcagcccga	gcttcaacga	cgtctggtcc	caaccgcgtc	tcttctacaa	2400
ctcactcacg	gtcttcgaga	agcaattcct	cgtcaacgcc	atgcgcttcg	aaaactccca	2460
cgtgcggagt	gaaaccgtgc	gtaagaacgt	catcatccag	ctgaaccgcg	tcgacaacga	2520
cctcgcccg	cgcgtcgcg	tagctatcgg	cgtcgaaccc	ccatccccgg	acccaacctt	2580
ctaccacaac	aaggcaaccg	tcccacatcg	caccttcggc	acgaatctcc	tgcggtcga	2640
cgggctgaaa	atcgccctcc	tgacaagaga	cgacggtagc	ttcacgatcg	cggagcagct	2700
ccgggcccgc	tttaacagcg	ccaacaacaa	agtagatata	gtcctagtgg	gctcatcgct	2760
tgatcccca	cgcggcggtga	acatgacct	ttccggcgcc	gacggctcga	tcttcgatgc	2820
cgtgatcgct	gtcggcggtc	tgctcacgag	cgcctcaacg	caatacccaa	gaggtcgccc	2880
gctcaggatt	attacggatg	catacgcgta	tggaaagccc	gttggcgccg	tcggtgacgg	2940
tagcaatgaa	gcccttcgtg	acgtccttat	ggcgcgtggt	ggggatgcgt	cgaatgggct	3000
ggaccagccc	ggtgtgtata	tttccaacga	tgtgagttag	gcctacgtta	gaagtgtctt	3060
ggacggattg	acggcatatc	ggttcttgaa	tcggttcccg	ttggatagaa	gcttggtatg	3120
aggtttgggg	cgcaaatatg	ggtttactac	ccccccccc	cccttttttt	ttttcttttt	3180
ctgtttttcc	atcttttggt	gaggtaatat	tgcatatata	agtaaattgc	gtttacgaaa	3240
gccggtgtca	agcttcanga	ggcctaatta	atgtgaagag	gaggttgaag	tgaaatcttg	3300
gtgtaactat	aataatttat	aataactaat	aacttataat	taatgtctat	tgtaatttcc	3360
tctcacattc	aatctatatt	tgatccttgt	cctttgtagc	tgtttaaata	taagccaaga	3420
gagacaaata	atgatagatt	aacaaataat	tgacacacca	ataggccttc	cctcacgata	3480
tcagatatta	tctatcatgt	tgtaatgata	cctcaaaaat	gccacaagct	tgccatgat	3540
tgaatatatta	tatgctgtaa	atgtagggaa	gagcgtacca	tccaaataac	cagaaaaaca	3600
tgtttttagct	taaaatctca	ctaaggctcg	tcgtgtctat	ttgaaatggc	tgccgcaagc	3660

```

tgactatctg ataaaaatgt ctgtatttcc gcttcacgac gcatgttatg actttcgaat      3720
atagataaaa cctgaacgat ttagcccttg ttgggggaaa tagggggttag gggggcgagc      3780
tacatatcat tcccatatga ccaaaaacta aaatagatat atatatatat atatatatat      3840
acaacacctt caaaaaggat cc                                          3862

```

<210> 2

<211> 707

<212> PRT

<213> Histoplasma capsulatum

<400> 2

```

Met Pro Ser Gly Gln Lys Gly Pro Leu Asp Arg Arg His Asp Thr Leu
1          5          10          15
Ser Asp Pro Thr Asp Gln Phe Leu Ser Lys Phe Tyr Ile Asp Asp Glu
20          25          30
Gln Ser Val Leu Thr Thr Asp Val Gly Gly Pro Ile Glu Asp Gln His
35          40          45
Ser Leu Lys Ala Gly Asn Arg Gly Pro Thr Leu Leu Glu Asp Phe Ile
50          55          60
Phe Arg Gln Lys Ile Gln His Phe Asp His Glu Arg Val Pro Glu Arg
65          70          75          80
Ala Val His Ala Arg Gly Ala Gly Ala His Gly Val Phe Thr Ser Tyr
85          90          95
Asn Asn Trp Ser Asn Ile Thr Ala Ala Ser Phe Leu Asn Ala Ala Gly
100         105         110
Lys Gln Thr Pro Val Phe Val Arg Phe Ser Thr Val Ala Gly Ser Arg
115         120         125
Gly Ser Val Asp Ser Ala Arg Asp Ile His Gly Phe Ala Thr Arg Leu
130         135         140
Tyr Thr Asp Glu Gly Asn Phe Asp Ile Val Gly Asn Asn Val Pro Val
145         150         155         160
Phe Phe Ile Gln Asp Ala Ile Gln Phe Pro Asp Leu Ile His Ala Val
165         170         175
Lys Pro Gln Pro Asp Ser Glu Ile Pro Gln Ala Ala Thr Ala His Asp
180         185         190
Thr Ala Trp Asp Phe Leu Ser Gln Gln Pro Ser Ser Leu His Ala Leu
195         200         205
Phe Trp Ala Met Ser Gly His Gly Ile Pro Arg Ser Met Arg His Val
210         215         220
Asp Gly Trp Gly Val His Thr Phe Arg Leu Val Thr Asp Glu Gly Asn
225         230         235         240
Ser Thr Leu Val Lys Phe Arg Trp Lys Thr Leu Gln Gly Arg Ala Gly
245         250         255
Leu Val Trp Glu Glu Ala Gln Ala Leu Gly Gly Lys Asn Pro Asp Phe
260         265         270
His Arg Gln Asp Leu Trp Asp Ala Ile Glu Ser Gly Arg Tyr Pro Glu
275         280         285
Trp Glu Leu Gly Phe Gln Leu Val Asn Glu Ala Asp Gln Ser Lys Phe
290         295         300
Asp Phe Asp Leu Leu Asp Pro Thr Lys Ile Ile Pro Glu Glu Leu Val
305         310         315         320
Pro Phe Thr Pro Ile Gly Lys Met Val Leu Asn Arg Asn Pro Lys Ser
325         330         335

```

Tyr Phe Ala Glu Thr Glu Gln Ile Met Phe Gln Pro Gly His Val Val
 340 345 350
 Arg Gly Ile Asp Phe Thr Asp Asp Pro Leu Leu Gln Gly Arg Leu Tyr
 355 360 365
 Ser Tyr Leu Asp Thr Gln Leu Asn Arg His Gly Gly Pro Asn Phe Glu
 370 375 380
 Gln Leu Pro Ile Asn Arg Pro Arg Ile Pro Phe His Asn Asn Asn Arg
 385 390 395 400
 Asp Gly Ala Gly Gln Met Phe Ile Pro Leu Asn Thr Ala Ala Tyr Thr
 405 410 415
 Pro Asn Ser Met Ser Asn Gly Phe Pro Gln Gln Ala Asn Arg Thr His
 420 425 430
 Asn Arg Gly Phe Phe Thr Ala Pro Gly Arg Met Val Asn Gly Pro Leu
 435 440 445
 Val Arg Glu Leu Ser Pro Ser Phe Asn Asp Val Trp Ser Gln Pro Arg
 450 455 460
 Leu Phe Tyr Asn Ser Leu Thr Val Phe Glu Lys Gln Phe Leu Val Asn
 465 470 475 480
 Ala Met Arg Phe Glu Asn Ser His Val Arg Ser Glu Thr Val Arg Lys
 485 490 495
 Asn Val Ile Ile Gln Leu Asn Arg Val Asp Asn Asp Leu Ala Arg Arg
 500 505 510
 Val Ala Leu Ala Ile Gly Val Glu Pro Pro Ser Pro Asp Pro Thr Phe
 515 520 525
 Tyr His Asn Lys Ala Thr Val Pro Ile Gly Thr Phe Gly Thr Asn Leu
 530 535 540
 Leu Arg Leu Asp Gly Leu Lys Ile Ala Leu Leu Thr Arg Asp Asp Gly
 545 550 555 560
 Ser Phe Thr Ile Ala Glu Gln Leu Arg Ala Ala Phe Asn Ser Ala Asn
 565 570 575
 Asn Lys Val Asp Ile Val Leu Val Gly Ser Ser Leu Asp Pro Gln Arg
 580 585 590
 Gly Val Asn Met Thr Tyr Ser Gly Ala Asp Gly Ser Ile Phe Asp Ala
 595 600 605
 Val Ile Val Val Gly Gly Leu Leu Thr Ser Ala Ser Thr Gln Tyr Pro
 610 615 620
 Arg Gly Arg Pro Leu Arg Ile Ile Thr Asp Ala Tyr Ala Tyr Gly Lys
 625 630 635 640
 Pro Val Gly Ala Val Gly Asp Gly Ser Asn Glu Ala Leu Arg Asp Val
 645 650 655
 Leu Met Ala Ala Gly Gly Asp Ala Ser Asn Gly Leu Asp Gln Pro Gly
 660 665 670
 Val Tyr Ile Ser Asn Asp Val Ser Glu Ala Tyr Val Arg Ser Val Leu
 675 680 685
 Asp Gly Leu Thr Ala Tyr Arg Phe Leu Asn Arg Phe Pro Leu Asp Arg
 690 695 700
 Ser Leu Val
 705

<210> 3
<211> 8
<212> PRT
<213> Histoplasma capsulatum

<400> 3
Ser Asp Pro Thr Asp Gln Phe Leu
1 5

<210> 4
<211> 15
<212> PRT
<213> Histoplasma capsulatum

<400> 4
Asp Phe Ile Phe Arg Gln Lys Ile Gln His Phe Asp His Glu Arg
1 5 10 15

<210> 5
<211> 9
<212> PRT
<213> Histoplasma capsulatum

<400> 5
Thr Leu Gln Gly Arg Ala Gly Leu Val
1 5

<210> 6
<211> 16
<212> PRT
<213> Histoplasma capsulatum

<400> 6
Ala Gln Ala Leu Gly Gly Lys Asn Pro Asp Phe His Arg Gln Asp Leu
1 5 10 15

<210> 7
<211> 6
<212> PRT
<213> Histoplasma capsulatum

<400> 7
Ser Gly Arg Tyr Pro Glu
1 5

<210> 8
<211> 10
<212> PRT
<213> Histoplasma capsulatum

<400> 8
Phe Asp Phe Asp Leu Leu Asp Pro Thr Lys
1 5 10

<210> 9
<211> 14
<212> PRT
<213> Nucleic Acid

<400> 9
Ile Ile Pro Glu Glu Leu Val Pro Phe Thr Pro Ile Gly Lys
1 5 10

<210> 10
<211> 15
<212> DNA
<213> Unknown

<400> 10
aaraayccvg aytty 15

<210> 11
<211> 14
<212> DNA
<213> Unknown

<220>
<221> misc_feature
<222> (1)...(14)
<223> n = a,c,t or g

<400> 11
ttnccdatng traa 14

<210> 12
<211> 22
<212> DNA
<213> Unknown

<400> 12
cggaatcctc cgaccctacg ga 22

<210> 13
<211> 27
<212> DNA
<213> Unknown

<400> 13
accaagcttc tatccaacgg gaaccga 27